

CLAIMS

What is claimed is:

1. A load/unload ramp assembly that is interconnectable with a base plate of a disk drive, wherein said load/unload ramp assembly comprises:

a ramp body that comprises:

a load/unload ramp; and

a first base plate attachment cantilever that comprises a first free end, wherein

5 a fastener can pass by said first base plate attachment cantilever such that a head of the fastener can exert a force on said first base plate attachment cantilever to deflect said first base plate attachment cantilever toward the base plate and direct said load/unload ramp assembly into forcible engagement with the base plate when said load/unload ramp assembly is installed on the base plate.

10 2. A load/unload ramp assembly, as claimed in Claim 1, wherein said ramp body further comprises at least one aperture shelf that is disposed about said fastener aperture, wherein said at least one aperture shelf is recessed relative to an upper surface of said first base plate attachment cantilever.

3. A load/unload ramp assembly, as claimed in Claim 2, further comprising a second base plate attachment cantilever that comprises a second free end, wherein said first and second free ends are disposed in spaced relation to define at least part of a fastener aperture, wherein the fastener can pass through said fastener aperture and the head of the fastener can exert a force on said first and second base plate attachment cantilevers to deflect said first and second base plate attachment cantilevers toward the base plate so as to direct said load/unload ramp assembly into forcible engagement with the base plate when said load/unload ramp assembly is installed on the base plate, wherein said first and second base plate attachment cantilevers are disposed in opposing relation, and wherein said at least one aperture shelf comprises first and second aperture shelves that are disposed in opposing relation.

4. A load/unload ramp assembly, as claimed in Claim 3, wherein said first and second base plate attachment cantilevers are disposed about said fastener aperture such that an imaginary line connecting said first and second base plate attachment cantilevers is perpendicular to an imaginary line connecting said first and second aperture shelves.

5. A load/unload ramp assembly, as claimed in Claim 1, further comprising a second base plate attachment cantilever that comprises a second free end, wherein said first and second free ends are disposed in spaced relation to define at least part of a fastener aperture, wherein the fastener can pass through said fastener aperture and the head of the fastener can exert a force on said first and second base plate attachment cantilevers to deflect said first and second base plate attachment cantilevers toward the base plate so as to direct said load/unload ramp assembly into forcible engagement with the base plate when said load/unload ramp assembly is installed on the base plate.

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6. A load/unload ramp assembly, as claimed in Claim 1, wherein said first base plate attachment cantilever comprises at least one fastener head contact protrusion disposed on an upper surface of said first base plate attachment cantilever.

7. A load/unload ramp assembly, as claimed in Claim 6, wherein each said fastener head contact protrusion on said first base plate attachment cantilever is disposed at least generally at said first free end.

8. A load/unload ramp assembly, as claimed in Claim 6, wherein said first base plate attachment cantilever comprises a pair of said fastener head contact protrusions.

9. A load/unload ramp assembly, as claimed in Claim 1, wherein an upper surface of said first base plate attachment cantilever is disposed in at least substantially horizontal relation when said load/unload ramp assembly is installed on the base plate.

10. A load/unload ramp assembly, as claimed in Claim 1, wherein said first base plate attachment cantilever comprises a lower surface, wherein said lower surface of said first base plate attachment cantilever extends at least generally upwardly progressing toward said first free end of said first base plate attachment cantilever.

11. A load/unload ramp assembly, as claimed in Claim 1, wherein said ramp body further comprises at least one base plate alignment post.

12. A load/unload ramp assembly, as claimed in Claim 1, wherein said ramp body is fabricated from plastic.

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13. A disk drive comprising:

a base plate comprising a first surface and a boss projecting away from said first surface, wherein said boss comprises a fastener receptacle;

a load/unload ramp assembly disposed on said base plate, wherein said

5 load/unload ramp assembly comprises:

a ramp body that comprises:

a load/unload ramp; and

a first base plate attachment cantilever that comprises a first free end; and

10 a fastener comprising a head and a shaft, wherein said shaft of said fastener extends past said first base plate attachment cantilever of said load/unload ramp assembly and is securely disposed within said fastener receptacle of said base plate such that said head of said fastener exerts a force on said first base plate attachment cantilever to deflect said first base plate attachment cantilever toward said base plate to in turn force a bottom surface of said load/unload ramp assembly into engagement with said first surface of said base plate.

15 14. A disk drive, as claimed in Claim 13, wherein said base plate further comprises first and second mounting pads disposed on said first surface of said base plate.

15. A disk drive, as claimed in Claim 14, wherein said first and second mounting pads are recessed relative to said boss of said base plate.

16. A disk drive, as claimed in Claim 14, wherein said first and second mounting pads are disposed in opposing relation.

20 17. A disk drive, as claimed in Claim 16, wherein said boss of said base plate is disposed between said first and second mounting pads.

18. A disk drive, as claimed in Claim 14, further comprising a second base plate attachment cantilever that comprises a second free end, wherein said first and second free ends are disposed in spaced relation to define at least part of a fastener aperture, wherein said fastener passes through said fastener aperture of said load/unload ramp assembly and said head of said fastener exerts a force on said first and second base plate attachment cantilevers to deflect said first and second base plate attachment cantilevers toward said base plate to in turn force said bottom surface of said load/unload ramp assembly into engagement with said first surface of said base plate.

19. A disk drive, as claimed in Claim 18, wherein said first and second mounting pads are disposed about said boss of said base plate such that an imaginary line connecting said first and second mounting pads is perpendicular to an imaginary line connecting said first and second base plate attachment cantilevers of said load/unload ramp assembly.

20. A disk drive, as claimed in Claim 18, wherein said ramp body further comprises at least one aperture shelf that is disposed about said fastener aperture, wherein said at least one aperture shelf is recessed relative to an upper surface of each of said first and second base plate attachment cantilevers, and wherein said at least one aperture shelf overlays at least one of said first and second mounting pads.

21. A disk drive, as claimed in Claim 13, wherein said ramp body further comprises at least one aperture shelf that is disposed about said fastener aperture, wherein said at least one aperture shelf is recessed relative to an upper surface of said first base plate attachment cantilever.

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22. A disk drive, as claimed in Claim 21, further comprising a second base plate attachment cantilever that comprises a second free end, wherein said first and second free ends are disposed in spaced relation to define at least part of a fastener aperture, wherein said fastener passes through said fastener aperture of said load/unload ramp assembly and said head of said fastener exerts a force on said first and second base plate attachment cantilevers to deflect said first and second base plate attachment cantilevers toward said base plate to in turn force said bottom surface of said load/unload ramp assembly into engagement with said first surface of said base plate, wherein said first and second base plate attachment cantilevers are disposed in opposing relation, and wherein said at least one aperture shelf comprises first and second aperture shelves that are disposed in opposing relation.

23. A disk drive, as claimed in Claim 22, wherein said first and second base plate attachment cantilevers are disposed about said fastener aperture such that an imaginary line connecting said first and second base plate attachment cantilevers is perpendicular to an imaginary line connecting said first and second aperture shelves.

24. A disk drive, as claimed in Claim 13, wherein said first base plate attachment cantilever comprises at least one fastener head contact protrusion disposed on an upper surface of said first base plate attachment cantilever.

25. A disk drive, as claimed in Claim 24, wherein each said fastener head contact protrusion on said first base plate attachment cantilever is disposed at least generally at said first free end.

26. A disk drive, as claimed in Claim 24, wherein said first base plate attachment cantilever comprises a pair of said fastener head contact protrusions.

27. A disk drive, as claimed in Claim 13, wherein an upper surface of said first base plate attachment cantilever is substantially parallel with said first surface of said base plate.

28. A disk drive, as claimed in Claim 13, wherein said first base plate attachment cantilever comprises a lower surface, wherein said lower surface of said first base plate attachment cantilever extends at least generally upwardly progressing toward said first free end of said first base plate attachment cantilever.

29. A disk drive, as claimed in Claim 13, wherein said base plate further comprises at least one alignment hole.

30. A disk drive, as claimed in Claim 29, wherein said at least one alignment hole comprises first and second alignment holes, wherein said boss of said base plate is disposed between said first and second alignment holes of said base plate.

31. A disk drive, as claimed in Claim 30, wherein said bottom surface of said load/unload ramp assembly comprises at least one alignment post configured to fit into a complimentary shaped said at least one alignment hole of said base plate.

32. A disk drive, as claimed in Claim 31, wherein said at least one alignment post comprises a cross-sectional configuration selected from the group consisting of circular, oval, and quadrilateral.

33. A disk drive, as claimed in Claim 13, wherein said base plate comprises first and second alignment holes disposed on opposite sides of said boss, wherein said base plate also comprises first and second mounting pads disposed on opposite sides of said boss, and wherein a first imaginary line connecting said first and second alignment holes is substantially perpendicular to a second imaginary line connecting said first and second mounting pads.

34. A disk drive, as claimed in Claim 13, wherein a lower surface of said head of said fastener is seated on an upper surface of said boss of said base plate.

35. A disk drive, as claimed in Claim 13, wherein a lower surface of said head of said fastener deflects said first base plate attachment cantilever into forcible engagement with underlying portions of said first surface of said base plate.

36. A disk drive, as claimed in Claim 13, wherein said fastener exerts an axial force within a range of about 25 pounds up to about 400 pounds on said boss of said base plate.

37. A disk drive, as claimed in Claim 13, wherein said fastener exerts an axial force within a range of about 100 pounds up to about 200 pounds on said boss of said base plate.

38. A disk drive, as claimed in Claim 13, wherein said fastener exerts an axial force within a range of about 1 pound up to about 10 pounds on said first base plate attachment cantilever of said load/unload/ramp assembly.

39. A disk drive, as claimed in Claim 13, wherein said first base plate attachment cantilever deflects from about 4 mils to about 8 mils due to the force exerted by said head of said fastener.

40. A disk drive, as claimed in Claim 13, further comprising a second base plate attachment cantilever that comprises a second free end, wherein said first and second free ends are disposed in spaced relation to define at least part of a fastener aperture, wherein said fastener passes through said fastener aperture of said load/unload ramp assembly and said head of said fastener exerts a force on said first and second base plate attachment cantilevers to deflect said first and second base plate attachment cantilevers toward said base plate to in turn force said bottom surface of said load/unload ramp assembly into engagement with said first surface of said base plate, wherein said first and second base plate attachment cantilevers are disposed in opposing relation.

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41. A method of interconnecting a load/unload ramp assembly with a base plate of a disk drive, the method comprising the steps of:

disposing said load/unload ramp assembly on said base plate;

5 passing a shaft of a fastener through a space past a first free end of a first base plate attachment cantilever of said load/unload ramp assembly and into a fastener receptacle on said base plate;

moving said shaft further within said fastener receptacle; and

deflecting said first base plate attachment cantilever to in turn direct said load/unload ramp assembly into forcible engagement with an underlying portion of said base plate.

10 42. A method, as claimed in Claim 41, wherein said disposing step comprises disposing first and second alignment posts of said load/unload assembly within first and second alignment holes of said base plate.

15 43. A method, as claimed in Claim 41, wherein said moving step comprises threadingly engaging said shaft of said fastener with complementarily threaded walls of said fastener receptacle.

44. A method, as claimed in Claim 41, wherein said deflecting step is responsive to said moving step.

20 45. A method, as claimed in Claim 41, wherein said deflecting step comprises engaging a head of said fastener against an upper surface of said first base plate attachment cantilever.

46. A method, as claimed in Claim 41, wherein said base plate comprises a protruding boss, wherein said fastener receptacle is disposed within said protruding boss, wherein said moving step is executed until a head of said fastener engages an upper surface of said boss.

5 47. A method, as claimed in Claim 46, wherein said moving step comprises exerting an axial force on said protruding boss that is greater than an axial force exerted on said first base plate attachment cantilever.

48. A method, as claimed in Claim 47, wherein said moving step comprises exerting an axial force of about 25 pounds up to about 400 pounds on said
10 protruding boss, and wherein said deflecting step comprises exerting an axial force of about 1 pound up to about 10 pounds on said first base plate attachment cantilever.

49. A method, as claimed in Claim 41, wherein said deflecting step comprises deflecting said first base plate attachment cantilever by an amount with a range of about 4 mils to about 8 mils.

15 50. A method, as claimed in Claim 41, wherein said passing step further comprises passing said shaft of said fastener through a fastener aperture defined at least in part by said first free end of said first base plate attachment cantilever and a second free end of a second base plate attachment cantilever of said load/unload ramp assembly, wherein said method further comprises the step of deflecting said second base plate attachment cantilever
20 simultaneously with said deflecting said first base plate attachment member step to in turn direct said load/unload ramp assembly into forcible engagement with said underlying portion of said base plate.

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